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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/107,684 06/30/98 BLUMENAU

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TM02/0718

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EXAMINER

ENCARNACION, Y

ART UNIT

PAPER NUMBER

2185

DATE MAILED:

07/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/107,684

Applicant(s)
Blumenau et al.

Examiner
Yamir Encarnacion

Art Unit
2185



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 25, 2001
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-20, and 22 is/are rejected.
- 7) ☒ Claim(s) 11 and 21 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 11, 17 20) ☐ Other:

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DETAILED ACTION

Substitute Specification

1. As part of the papers filed since the previous Office Action, the examiner received a substitute specification. This substitute specification has been placed in the File Wrapper as paper #16 but has not been entered because its submission did not comply with the requirements set forth in 37 C.F.R. 1.125. The requirements that have not been complied with are:

- (1) a statement that the substitute specification includes no new matter;
- (2) a marked up copy of the substitute specification.

If applicant desires to have the substitute specification entered, the requirements of 37 C.F.R. 1.125 must be met.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10, 12-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ally* (USPN: 4,970,692) in view of *Krueger* (USPN: 6,256,642 B1), *Fujita* (USPN: 5,359,569), and *Sakui* (USPN: 6,240,022 B1).

As to claims 1, 12, and 22,

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Claimed	<i>Ally</i>
1. A storage system for use in a computer system including a host computer, the storage system comprising: at least one storage device having a plurality of <u>user-accessible</u> storage locations;	See figure 2, EEPROM 54.
[a cache memory,] and	
a controller, <u>coupled to the cache memory and the at least one storage device</u> , that controls access to the at least one storage device from the host computer,	Internal to EEPROM 54. See decoder 102 in figure 4.
the controller being capable of generating data <u>that is independent of any data passed from the host computer to the storage system</u> and writing the <u>generated</u> data to a first storage location of the plurality of storage locations on the at least one storage device in response to a communication from the host computer that does not include the <u>generated</u> data to be written to the first storage location.	When EEPROM 54 receives an erase instruction, all data in the EEPROM is erased. See column 4, lines 38-41.

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Ally does not explicitly disclose what data is stored in the EEPROM 54 when it is erased. Also, *Ally* does not disclose of a using a cache memory.

Krueger discloses of a flash EEPROM that is erased by setting all of its bits to 1. See *Krueger*, column 2, lines 15-16. In view of *Krueger*, a person of ordinary skill in the art would have found it obvious to store 1's in all the bit locations of the EEPROM disclosed by *Ally* for the purpose of erasing the EEPROM. Accordingly, the *Ally/Krueger* combination would have met the limitation requiring that the controller be "capable of generating data that is independent of any data passed from the host computer to the storage system" given that the pattern of all 1s is not dependent on data passed by microprocessor 52 to the EEPROM 54.

As to the limitation requiring "a cache memory." *Krueger* further discloses that flash EEPROMs can only be erased a limited number of times. See *Krueger*, column 2, lines 24-25. This was a known problem of devices such as the one disclosed by *Krueger* and *Ally*. For example, *Fujita* recognized the problem having to do with the limited number of writes in EEPROMs. See *Fujita* column 1, lines 40-44. In order to alleviate the problem having to do with the limited number of writes, *Fujita* used a write cache memory 3 to store data that was to be written to the EEPROM. As an added benefit, the write cache memory of *Fujita* allowed for a semiconductor memory device that did not need a much longer time for writing than for reading. See *Fujita*, column 1, lines 58-63. A person of ordinary skill in the art would have found it obvious to incorporate a write cache memory such as the one disclosed by *Fujita* into the *Ally/Krueger* combination for the purpose of increasing the lifespan of the EEPROM in the *Ally/Krueger* combination and for the

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purpose of increasing the speed of the write operations. Therefore, it would have been obvious to a person of ordinary skill in the art to use a write cache memory such as the one disclosed by *Fujita* into the *Ally/Krueger* combination because the *Ally/Krueger/Fujita* combination would have achieved an increased life span for the EEPROM and would have allowed for faster writes. As to claims 2 and 13, the EEPROM in the *Ally/Krueger/Fujita* includes a plurality of storage locations and is erased in response to a erase instruction.

As to claims 3 and 14, the *Ally/Krueger/Fujita* combination writes data having a value of one.

As to claims 5, 6, 16, and 17, to make separate is not patentable. The examiner takes "Official notice" that the makeup of large memory devices from smaller memory devices was known in the art. It would have been obvious to a person of ordinary skill in the art to assemble the EEPROM in the *Ally/Krueger/Fujita* combination from smaller EEPROMs for the purpose of making use of the commercially available memories of the time to achieve a desired memory capacity.

Alternatively, see the comments for claim 4 below.

As to claims 8 and 19, *Ally/Krueger/Fujita* discloses of an EEPROM erase instruction. *Sakui* discloses of an EPPROM with a block erase, a multi-block erase, and a chip erase function. See column 5, lines 18-23. A person of ordinary skill in the art would have found it obvious to incorporate the block erase and the multi-block erase functions disclosed by *Sakui* into the *Ally/Krueger/Fujita* combination for the purpose of increasing the flexibility of the erase operations. Accordingly, it would have been obvious to a person of ordinary skill in the art to incorporate the block erase and the multi-block erase functions in the *Ally/Krueger/Fujita* because

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the *Ally/Krueger/Fujita/Sakui* combination would have achieved an erase function with increased flexibility. The *Ally/Krueger/Fujita/Sakui* combination making use of the block erase function would have met the limitation in the claims.

As to claim 4, 7, 15, and 18 see the multi-block erase function discussed above in relation to claims 8 and 19 above.

As to claims 9 and 20, see the comments for claims 4, 5, and 3 above.

As to claim 10, see *Ally*, figure 4, the charge pump 116.

Allowable Subject Matter

4. Claims 11 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

As presently interpreted by the examiner, the objected to claims cover the secure delete operation disclosed on pages 24-25 of the specification. While the Prior Art cited in this Office Action and the objected to claims are related in that they both involve storing meaningless data to a storage system, they differ in that the cited Prior Art is tied to the EEPROM art and the objected to claimed subjected matter is tied to a disk drive storage system. The examiner has found no teaching that would have motivated a person of ordinary skill in the art to apply to a disk storage system the concepts that the cited Prior Art teach of in the EEPROM art.

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shagam, E., inventor; EMC Corporation, assignee. Method and Apparatus for Defragmenting a storage device using a copy function in the device control logic. US patent 6,205,529 B1. 2001 Mar 20. *Shagam* discloses of a copy command that moves data internally within a disk. As presently interpreted by the examiner, the system disclosed by *Shagam* is distinguishable from the presently claimed system because the system in *Shagam* does not generate data but instead copies it in response to a command.

7. Any inquiry concerning this or an earlier communication from the Examiner should be directed to Yamir Encarnacion by phone at (703) 308-5466.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Do Yoo, can be reached on (703) 308-4908.

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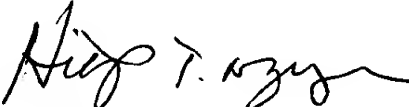
Any formal response to this action intended for entry should be mailed to Commissioner of Patents and Trademarks, Washington, D.C. 20231 or faxed to (703) 308-9051 and labeled "FORMAL" or "OFFICIAL." Any informal or draft communication should be faxed to (703) 305-9731 and labeled "INFORMAL" or "UNOFFICIAL" or "DRAFT" or "PROPOSED" and followed by a phone call to the Examiner at the above number. Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Yamir Encarnacion

YEE

Patent Examiner

July 14, 2001


HIEP T. NGUYEN
PRIMARY EXAMINER